IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant:	Sebastien BOUAT	§	Confirmation No.:	2264
		§		
Serial No.:	10/536,625	§	Group Art Unit:	2416
		§		
Filed:	March 02, 2006	§	Examiner:	Luat Phung
		§		
For:	Improvements In or Relating To Fault Tolerant Systems	§ §	Docket No.:	200309832-4

APPEAL BRIEF

Mail Stop Appeal Brief – Patents Date: January 28, 2010
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

Appellant hereby submits this Appeal Brief in connection with the above-identified application. A Notice of Appeal was electronically filed on December 18, 2009.

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I. REAL PARTY IN INTEREST

The real party in interest is Hewlett-Packard Development Company, L.P. (HPDC), a Texas Limited Partnership, having its principal place of business in Houston, Texas. HPDC is a wholly owned affiliate of Hewlett-Packard Company (HPC). The Assignment to HPDC was recorded on March 2, 2006, at Reel/Frame 017311/0966.

II. RELATED APPEALS AND INTERFERENCES

Appellant is unaware of any related appeals or interferences.

III. STATUS OF THE CLAIMS

Originally filed claims:	1-36.
Claim cancellations:	None.
Added claims:	None.
Presently pending claims:	1-36.
Presently allowed claims:	None.
Presently appealed claims:	1-36.

IV. STATUS OF THE AMENDMENTS

No claims were amended after the final Office action dated September 18, 2009.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

This section provides a concise explanation of the subject matter defined in each of the independent claims, referring to the specification by page and line number or to the drawings by reference characters as required by 37 C.F.R. § 41.37(c)(1)(v). Each element of the claims is identified with a corresponding reference to the specification or drawings where applicable. The specification references are made to the application as filed by Appellant. Note that the citation to passages in the specification or drawings for each claim element does not imply that the limitations from the specification and drawings should be read into the corresponding claim element. Also note that these specific references are not exclusive; there may be additional support for the subject matter elsewhere in the specification and drawings.

Many critical systems, such as telecommunications networks, have essential elements which are required to function with downtime of no more than a few minutes per year.[1] To achieve this, critical systems are often designed to be fault tolerant, such that a fault or failure of a system or component of a system does not cause significant disruption to the services provided thereby.[2] Such systems are often referred to as high-availability (HA) systems.[3]

A system may be arranged to be high-availability in a number of different ways, for example, through use of an active and standby system, or using a cluster of servers.[4] With an active/standby system, on detection of a fault by the active system, a switchover of the active and standby systems occurs such that the standby system becomes the active system, and vice versa.[5] In this way,

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[1] P. 1, lines 1-4.

[2] P. 1, lines 4-7.

[3] P. 1, line 7.

[4] P. 1, lines 16-17.

[5] P. 1, lines 18-20.

services are restored, albeit, potentially, after a short delay, once the switchover has occurred.[6]

Different levels of high-availability exist which may be split into two broad categories, referred to herein as 'service continuity' and 'task preservation'.[7] Service continuity refers to the ability to continue to use the services provided by a system after a fault or switchover of a high-availability system, whereas task preservation, a higher level of high-availability, refers to the ability for tasks being processed when a fault or switchover occurs to be largely unaffected by the switchover.[8]

In order to provide task preservation, a common storage element is often provided in addition to a high-availability configuration.[9] Context data relating to each task is stored in the common storage area, and may be used in the event of a switchover for reinitializing the new active system with the context of any tasks which were in progress when the switchover occurred.[10] Telephony system context information may relate to the state of different protocol layers of a protocol stack as well as any application specific data related to individual calls.[11] Upon a switchover to a standby system, the newly activated system can recover the stored context data from the common storage element and rebuild the protocol stack and application context for calls open at the time of the switchover.[12] In this way, processing of calls open at the time of a switchover may continue on the new active system without significant interruption.[13]

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[6] P. 1, lines 20-22.

[7] P. 1, lines 24-25.

[8] P. 1, lines 25-29.

[9] P. 2, lines 5-6.

[10] P. 2, lines 6-9.

[11] P. 2, lines 11-13.

[12] P. 2, lines 13-15.

[13] P. 2, lines 16-17.

However, the requirement for a common storage area for storing context data adds to the complexity and cost of such systems.[14]

Appellant has devised a method for storing context information in an outgoing message sent from a HA node using a protocol stack.[15] A different node receiving the message will include the context information in a response to the HA node.[16] If a switchover of the HA node has occurred the HA node will have no context information related to the response, and will restore its context from the message.[17] Thus, the need for a common storage is is alleviated.

The invention of claim 1 is directed to a method of storing context information in an outgoing message sent from a node including a computing device using a protocol stack having at least one layer.[18] The method includes providing, by the computing device, the outgoing message from an application to a layer of the protocol stack.[19] The outgoing message is destined for an application on a destination node.[20] The method also includes selectively indicating to the layer of the protocol stack that context information is to be obtained for that layer.[21] Context information in accordance with the indication is obtained by the computing device.[22] The obtained context information is added to the outgoing message,[23] by the computing device, such that a

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[14] P. 2, lines 19-20.

[15] P. 2, lines 25-26.

[16] P. 10, lines 1-3.

[17] P. 10, lines 21-32.

[18] Figs. 4-5.

[19] Fig. 5 500, p. 9, lines 17-29.

[20] P. 8, lines 23-25.

[21] P. 2, lines 27-28; p. 8, lines 31-32.

[22] Fig. 5 506; p. 9, lines 18-19.

[23] Fig. 5 508; p. 9, lines 19-20.

response to the message contains the context information.[24] The response is received from the destination node.[25]

The invention of claim 11 is directed to a method of restoring the context information of a layer of a protocol stack of a node.[26] The method includes receiving a message by a computing device.[27] Whether the context information of the layer is to be restored is determined by the computing device.[28] Where it is so determined, the presence of context information relevant to the layer within the message is determined by the computing device,[29] and the context of the layer is restored, by the computing device, using context information from the message.[30]

The invention of claim 18 is directed to a system for storing context information in an outgoing message sent from a node using a protocol stack having at least one layer.[31] The system includes a circuit for providing the outgoing message from an application to a layer of the protocol stack.[32] The outgoing message is destined for an application on a destination node.[33] The system also includes means for indicating to the layer of the protocol stack that context information is to be obtained for that layer.[34] The system further includes a module for obtaining context information in accordance with the

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[24] P. 10, lines 1-3.

[25] P. 10, lines 1-3.

[26] Figs. 4, 6.

[27] Fig. 6 600; p. 10, lines 10-12.

[28] Fig. 6 602; p. 10, lines 14-25.

[29] Fig. 6 606; p. 10, lines 25-27.

[30] Fig. 6 608, 610; p. 10, lines 29-32.

[31] Figs. 4-5.

[32] Fig. 5 500, p. 9, lines 17-29; p. 12, lines 32-34.

[33] P. 8, lines 23-25.

[34] P. 12, lines 32-34, “programmed computing device, electronic circuitry.” P. 8, lines 31-32.

indication.[35] The system yet further includes a circuit for adding the obtained context information to the outgoing message such that a response to the message contains the context information.[36] The response is received from the destination node.[37]

The invention of claim 28 is directed to a system of restoring the context information of a layer of a protocol stack of a node.[38] The system includes receiving means for receiving a message.[39] The system also includes logic for determining whether the context information of the layer is to be restored.[40] The system further includes a circuit for determining the presence of context information relevant to the layer within the message.[41] The system yet further includes restoration means for restoring the context of the layer using context information from the message.[42]

The invention of claim 35 is directed to a method of sending a message from a node through a hierarchical structure of one or more discreet layers.[43] The method includes indicating to a layer that context information is to be obtained for that layer.[44] Context information in accordance with the indication is obtained by a computing device.[45] The obtained context information is added to the message by the computing device,[46] such that a response to the

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[35] Fig. 5 506; p. 9, lines 18-19.

[36] P. 4, lines 10-11; Fig. 5 508; p. 9, lines 19-20; P. 10, lines 1-3; p. 12, lines 32-34.

[37] P. 10, lines 1-3.

[38] Figs. 4, 6.

[39] P. 12, lines 32-34, “programmed computing device, electronic circuitry.” Fig. 6 600; p. 10, lines 10-12.

[40] P. 4, lines 31-32; Fig. 6 602; p. 10, lines 14-25; p. 12, lines 32-34.

[41] Fig. 6 606; p. 10, lines 25-27; p. 12, lines 32-34.

[42] P. 12, lines 32-34, “programmed computing device, electronic circuitry.” Fig. 6 608, 610; p. 10, lines 29-32.

[43] Figs. 4-5.

[44] P. 2, lines 27-28; p. 8, lines 31-32; p. 9, lines 17-18.

[45] Fig. 5 506; p. 9, lines 18-19.

[46] Fig. 5 508; p. 9, lines 19-20.

message contains context information needed to restore a pre-switchover context of the layer.[47]

The invention of claim 36 is directed to a method of restoring the context information of a layer of a hierarchical structure of discreet layers.[48] The method includes receiving a message by a computing device.[49] Whether the context information of the layer is to be restored is determined by the computing device.[50] Where it is so determined, the presence of context information relevant to the layer within the message is determined by the computing device,[51] and the context of the layer is restored by the computing device using context information from the message.[52]

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[47] P. 10, lines 1-3, lines 21-32.

[48] Figs. 4, 6.

[49] Fig. 6 600; p. 10, lines 10-12.

[50] Fig. 6 602; p. 10, lines 14-25.

[51] Fig. 6 606; p. 10, lines 25-27.

[52] Fig. 6 608, 610; p. 10, lines 29-32.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1, 2, 4-6, 10-14, 18, 19, 21-23, 27, 35 and 36 are obvious over Iyer et al. (U.S. Pub. No. 2004/0088418, hereinafter "Iyer"), in view of Ho et al. (U.S. Pat. No. 6,910,148, hereinafter "Ho").

Whether claims 3, 7-9, 15-17, 20 and 24-26 are obvious over Iyer in view of Ho, and further in view of Lau et al. (U.S. Pub. 2003/0046604, hereinafter "Lau") or Vasavada et al. (U.S. Pub. No. 2004/0078619, hereinafter "Vasavada").

Whether claims 28-31 are obvious over Iyer.

Whether claims 32-34 are obvious over Iyer, in view of Lau or Vasavada.

VII. ARGUMENT

A. Rejections Under 35 U.S.C. § 103 over Iyer and Ho

1. Claim 1

Independent claim 1 requires "adding, by the computing device, the obtained context information to the outgoing message." The "obtained context information" is obtained in accordance with a selective indication "to the layer of the protocol stack that context information is to be obtained for that layer."[53] The "outgoing message" is provided from an application and destined for an application of a destination node."[54] The Examiner cited Iyer Figs. 4-5 and ¶¶ 44-46 and 60 as allegedly teaching these limitations. Iyer is directed to implementing socket redundancy.[55] Iyer teaches creation of a redundant socket on a standby side that becomes active should the active side fail.[56]

Iyer Fig. 4 shows a block diagram of an architecture for socket redundancy.[57] Each of primary side 402 and standby side 404 include an application, socket library, and socket layer.

Iyer Fig. 5 shows a socket control redundancy procedure.[58]

Iyer ¶¶ [0044]-[0046] teach redundancy procedure operation in accordance with the architecture of Fig. 4. More specifically, Iyer ¶ [0044] teaches an "[a]pplication 405 . . . performs an open socket operation using socket library 410." Thereafter, the application sets parameters of the opened socket via a set socket operation.[59] One of the available parameters sets the socket to be redundant.[60] When the socket layer 415 receives the redundancy parameter, "[t]he socket layer . . . sends a message with the socket parameters

[53] Claim 1.

[54] *Id.*

[55] *Iyer*, ¶ [0007].

[56] *Iyer*, Abstract.

[57] *Iyer*, ¶ [0014].

[58] *Iyer*, ¶ [0072].

[59] *Iyer*, ¶ [0044].

[60] *Id.*

to the standby socket layer 430."[61] In response to the message sent by the socket layer 415, socket layer 430 creates a socket.[62] Thus, Iyer ¶ [0044] teaches an application 405 setting a socket to be redundant.[63] The socket layer 415 then creates and sends a message to the standby side 404 causing the standby side 404 to create a socket.[64]

Iyer ¶ [0045] teaches that the application 405 obtains the cookie sent to socket layer 430 by socket layer 415 and sends the cookie to application 420. Application 430 may thereafter perform a set socket operation to complete association with the active side.[65]

Iyer ¶ [0046] teaches that "[o]nce socket association has been performed successfully, all new socket control operations . . . are automatically transferred to the standby by the socket layer 415."

Iyer ¶ [0060] teaches that data redundancy may start once control redundancy is established.

These passages of Iyer teach the creation of a redundant socket by various messages sent from primary side 402 to standby side 402. For example: socket creation message from socket layer 415 to socket layer 430, responsive ACK from socket layer 430 to socket layer 415, cookie from application 405 to application 420 and responsive ACK. The passages further teach maintenance of the redundancy by control transfer.

None of the cited passages of Iyer, or any other portion of Iyer teach or suggest that context of a selected protocol layer is added to an outgoing message sent from an application on a node to an application on a destination node. The Examiner contended that "all socket operations, i.e., context information at socket layer, are automatically transferred by socket layer, i.e.,

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[61] *Id.*

[62] *Id.*

[63] *Id.*

[64] *Id.*

[65] *Iyer*, ¶ [0045].

computing device, to the standby node."[66] However, while Iyer does teach that "all new socket control operations . . . are transferred," such teaching does not suggest that any protocol layer context is added to an inter-application message. Ho fails to satisfy this deficiency of Iyer.

The Examiner admitted that Iyer fails to teach that "a response to the message contains the context information [added to the outgoing message], the response is received from the destination node." The Examiner proposed that because Iyer teaches redundancy and switchover from active to standby sides on failure of the active side, "it would have been obvious . . . to send a response from the standby node when a failure is detected at the active node, the response containing context information of the socket layer, the context information being restored prior to the switchover, to ensure data redundancy with the active-turned-standby node."[67] However, Iyer fails to teach or even suggest returning context or any message to a failed (i.e., an active-turned-standby) node. Iyer further fails to teach or suggest using a failed node as a standby node, or even suggest that a failed node is capable of operating as a standby node or receiving a response. Moreover, the Examiner admitted that Iyer fails to teach a response including context, much less a response including context contained in the message to which the standby side is responding. For at least these reasons, Appellant respectfully submits that one skilled in the skilled in art of high availability system design would not have performed the claimed operation based on the disclosure of Iyer. Therefore, Appellant respectfully submits that the Examiner has failed to state a prima facie case of obviousness.

[66] *Final Office Action*, p. 9.

[67] *Final Office Action*, p. 10.

The Examiner further proffers Ho as teaching the context including message response that Iyer lacks.[68] Ho teaches an active card 910 and a standby card 950 in node 104.[69] If the active card 910 fails, the standby card 950 resumes protocol sessions with peer nodes.[70] Routing protocol information is replicated from active card 910 to standby card 950.[71]

Ho Fig. 28 and associated text at col. 30, line 45 to col. 31, line 4, cited by the Examiner, teach bulk updating for BGP protocol redundancy by replicating databases from the active card 910 to the standby card 950. The Examiner contended that "it would have been obvious . . . to replicate the databases, by sending a message containing context information previously received as suggested by Ho, in the redundancy system of Iyer in order to implement a graceful switchover to ensure high availability."[72]

Ho teaches replication of active card 910 databases in a standby card 950. Thus, the active card 910 sends previously received routing information to the standby card 950. Iyer teaches the active side automatically transfers control operations to the standby side. Neither Ho nor Iyer teach or even suggest "a response to the message contains the context information" received in the message. The Examiner apparently proposes that sending a second message containing information previously received in a first message is "a response to the [first] message." If this is the case, Appellant respectfully disagrees, as a "response" is commonly known to be "a reply or answer."[73] Neither Iyer nor Ho teaches or suggests such operations. Therefore, Appellant respectfully submits that the Examiner has failed to state a prima facie case of obviousness.

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[68] *Id.*

[69] *Ho*, Fig. 4A.

[70] *Ho*, col. 6, lines 21-29.

[71] *E.g.*, *Ho*, col. 8, lines 49-53.

[72] *Final Office Action*, p. 10.

[73] THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE, 4th Ed., ©2000.

For the aforementioned reasons, no combination of Iyer and Ho teach or suggests the limitations of independent claim 1. Therefore, Appellant respectfully submits that the Examiner erred in rejecting claim 1 and claims 2, 4-6, and 10 depending from claim 1, and respectfully requests that the claims be set for issue.

2. Claim 18

Independent claim 18 includes limitations similar to those of claim 1 explained above. Therefore, Appellant respectfully submits that the Examiner erred in rejecting claim 18 and claims 19, 21-23, and 27 for much the same reasons as are given above regarding claim 1.

3. Claim 35

Independent claim 35 includes limitations similar to those of claim 1 explained above, and further requires that "a response to the message contains context information needed to restore a pre-switchover context of the layer." As explained above, neither Iyer nor Ho, nor any combination of Iyer and Ho teach a response to the message including context information. For at least this reason, and other reasons given with regard to claim 1, Appellant respectfully submits that the Examiner erred in rejecting claim 35, and respectfully request that claim 35 be set for issue.

4. Claim 11

Independent claim 11 requires "determining, by the computing device, whether the context information of the layer is to be restored." The Examiner cited Iyer ¶ [0054] as allegedly teaching these limitations. Iyer ¶ [0054] teaches switchover before the connection is established. However, switchover as taught by Iyer does not involve restoring the context information of a layer of a protocol stack of a node, but rather involves activation of a previously initialized socket of a node. Consequently, Iyer does not teach or even suggest "determining . . . whether the context information of the layer is to be restored." Iyer does not teach restoring a protocol stack layer, instead Iyer teaches the standby side 404

is previously initialized and ready to "seamlessly take over the socket operations."[74] Ho fails to satisfy this deficiency of Iyer.

Claim 11 also requires "determining, by the computing device, the presence of context information relevant to the layer within the message." The Examiner again cited Iyer ¶ [0054] as allegedly teaching these parameters. The Examiner apparently equates the Iyer error code ESWITCHOVER with "context information relevant to the layer within the message." However, the error code is not protocol layer context information, but rather an indication that the standby side should become active. Thus, Iyer fails to teach or even suggest "determining . . . the presence of context information relevant to the layer within the message." Ho fails to satisfy this deficiency of Iyer.

Claim 11 further requires "restoring, by the computing device, the context of the layer using context information from the message." The Examiner cited Iyer ¶¶ [0046], [0054], [0060], and [0063] as allegedly teaching these limitations. The cited portions of Iyer teach switchover from active side 402 to standby side 404. However, Iyer switchover does not restore the context layer of a node, but rather activates a pre-initialized standby side 404 to take over for a failed active side 402. Moreover, initiating the TCP state machine as taught in Iyer ¶ [0054] is not restoring context to a protocol layer using context information from the received message, but merely resetting the state machine.

In lieu of Iyer, the Examiner cites Ho as teaching each of the above limitations. The Examiner refers to the Ho switchover process and cited Ho Fig. 9 item 950, Fig. 12 items 1208, 1212, and col. 19, lines 11-33 as allegedly teaching these limitations. Ho Fig. 12 and associated text at col. 19, lines 11-33 teach graceful switchover from active card 910 to standby card 950. Like Iyer, when Ho switches over, the standby card 950 is activated to take over the functions of the active card 910. However, Ho fails to teach or even suggest "determining . . . whether the context information of the layer is to be restored." Instead, Ho teaches determining whether a switchover should be performed,

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[74] *Iyer*, ¶ [0009].

where the standby card 950 includes a replica of the active card's databases.[75] No node's protocol layer context is restored. Instead of restoring context information in a card, Ho simply enables the standby card 950 to use the BGP and TCP routing information already stored in the standby card 950.

Ho also fails to teach or suggest "determining . . . the presence of context information relevant to the layer within the message." The Examiner pointed out that the active card 910 informs the standby card 950 to activate.[76] However, Ho fails to teach or suggest that any such message includes protocol layer context information.

Ho further fails to teach or suggest "restoring . . . the context of the layer using context information from the message." As explained above Ho teaches implementing high availability by maintaining a replica of the TCP and BGP databases in a standby card 950. No restoration of context is necessary in Ho, because the standby card 950 includes the replica databases.

For the aforementioned reasons, no combination of Iyer and Ho teach or suggests the limitations of independent claim 11. Therefore, Appellant respectfully submits that the Examiner erred in rejecting claim 11 and claims 12-14 depending from claim 11, and respectfully requests that the claims be set for issue.

5. Claim 36

Independent claim 36 includes limitations similar to those of claim 11 explained above. Ho fails to satisfy these deficiencies of Iyer. Therefore, Appellant respectfully submits that the Examiner erred in rejecting claim 36 for much the same reasons as are given above regarding claim 11.

6. Claims 5 and 22

Claims 5 requires "the step of obtaining context information obtains context information related to the outgoing message." Claim 22 includes similar limitations. The Examiner cited Iyer ¶¶ [0046] and [0063] as allegedly teaching

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[75] *Ho*, col. 2, lines 45-60.

[76] *Final Office Action*, p. 12.

these limitations. Iyer ¶ [0046] teaches transferring control operations to the standby side. Such transfer does not teach or suggest sending an outgoing message from application to application and obtaining context information related to the message. Instead, the transfer is a control message. No obtaining of context related to the control message is taught or suggested.

Iyer ¶ [0063] teaches switchover, indicating that the standby side is capable of taking over active side operations. This does not imply, however, that the active side obtains context information related to an outgoing message and adds the context to the message. Instead, Iyer teaches that the sockets are synchronized by way of the control transfers of ¶ [0046].

Ho fails to satisfy these deficiencies of Iyer. For these additional reasons, Appellant respectfully submits that the Examiner erred in rejecting claims 5 and 22.

7. Claims 10 and 27

Claim 10 requires "adding, to the message, an indication associated with the obtained context data where it is determined that the context data is potentially inaccurate or incomplete." Claim 27 includes similar limitations. The Examiner cited Ho, col. 21, lines 16+, and col. 22, lines 21+ as allegedly teaching these limitations. The cited portions of Ho teach the use of negative and positive acknowledgement on transactions between the active card 910 and the standby card 950. However, an acknowledgement transmitted in response to a message is not adding to a message an indication that context information in the message is potentially inaccurate or incomplete, but rather a different separate message communicating status of operations associated with receipt of the message. A message and an acknowledgement are transmitted from different sources and communicate different information.

Iyer fails to satisfy these deficiencies of Ho. For these additional reasons, Appellant respectfully submits that the Examiner erred in rejecting claims 10 and 27.

8. Claim 12

Claim 12 requires the "step of determining determines whether the context information of the layer is to be restored based in part on the context information of the layer and in part on the received message." The Examiner cited Iyer ¶¶ [0044] and [0050]-[0054] as allegedly teaching these limitations. With regard to the "step of determining," the Examiner cited the ESWITCHOVER error code.[77] Iyer ¶¶ [0050-54] teach "connect" operations. Iyer ¶ [0054] teaches that if a switchover is detected before connection "the application 420 calls connect . . . to initiate the TCP state machine." Thus, the operations of Iyer ¶ [0054] are predicated on prior connection establishment rather than "context information of the layer" as required by claim 29.

Iyer ¶ [0044] teaches establishing a redundant socket, and fails to teach or suggest determining whether a protocol layer is to be restored based on the context information of the layer.

Ho fails to satisfy these deficiencies of Iyer. For at least these additional reasons, Appellant respectfully submits that the Examiner erred in rejecting claim 29.

9. Claim 13

Claim 13 requires the step of determining further comprises checking the existence at the layer of context information associated with the received message." The Examiner cited Iyer ¶¶ [0044] and [0050]-[0054], explained above, as allegedly teaching these limitations. Iyer ¶ [0044] fails to teach or suggest checking for the existence of context information at the layer" as part of determining whether layer context should be restored. Moreover, determining whether a connection has been established[78] does not involve checking for the

[77] *Final Office Action*, p. 15.

[78] *Iyer*, ¶ [0054].

existence of context information. For at least these additional reasons, Appellant respectfully submits that the Examiner erred in rejecting claim 30.

10. Claim 14

Claim 14 requires "the step of determining further comprises checking whether the received message is an initial message." The Examiner cited Iyer ¶¶ [0044]-[0045] as allegedly teaching these limitations. Nothing in the cited portion of Iyer teaches or suggests determining whether the received message is an initial message, but rather merely teach various messages transferred between active and standby sides as part of socket setup and associated operations. No determination of whether a message is an "initial message" is taught. For at least this additional reason, Appellant respectfully submits that the Examiner erred in rejecting claim 31.

B. Rejections Under 35 U.S.C. § 103 Over Iyer, Ho, and Lau or Vasavada

Claims 3, 7-9, 15-17, 20 and 24-26 each depend from one of claims 1, 11, and 18. Neither Lau nor Vasavada satisfy the deficiencies of Iyer and Ho explained above with regard to claims 1, 11, and 18. Therefore, Appellant respectfully submits that the Examiner erred in rejecting claims 3, 7-9, 15-17, 20 and 24-26 for much the same reasons as given above with regard to the respective independent claims.

1. Claims 3 and 20

Claims 3 and 20 require "the outgoing message is sent from the node to a remote node across a network." The Examiner admitted that Iyer and Ho fail to teach these limitations.[79] The Examiner cited Lau ¶ [0024] as allegedly teaching these limitations. Lau ¶ [0024] teaches a "[s]tandby MPLS control card 14 is removably coupled to router 11." As shown in Lau Fig. 1, the standby MPLS control card 14 is part of the router 11. Thus, Lau fails to teach or even suggest "the outgoing message is sent from the node to a remote node." For this

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[79] *Final Office Action*, p. 13.

additional reason, Appellant respectfully submits that the Examiner erred in rejecting claims 3 and 20.

2. Claims 7, 15, and 24

Claims 7 and 24 require "use with a session initiation protocol (SIP) network." Claim 15 includes similar limitations. The Examiner admitted that Iyer and Ho fail to teach these limitations.[80] The Examiner cited Lau and Vasavada as teaching MPLS and IS-IS protocols.[81] The Examiner postulated that these protocols make use of the SIP protocol obvious.[82]

> *Graham v. John Deere Co. of Kansas City,* 383 U.S. 1, 17-18, 86 S.Ct. 684, 15 L.Ed.2d 545, set out an objective analysis for applying § 103: "[T]he scope and content of the prior art are ... determined; differences between the prior art and the claims at issue are ... ascertained; and the level of ordinary skill in the pertinent art resolved.[83]

Here, the Examiner has admitted that Iyer and Ho fail to teach the limitations of the present claims, and has failed show any such teaching in Lau and Vasavada. Thus, the prior art presented fails to teach or suggest use of SIP. Therefore, Appellant respectfully submits that the Examiner has failed to state a prima facie case of obviousness. For these additional reasons, Appellant respectfully submits that the Examiner erred in rejecting claims 7, 15, and 24.

3. Claims 8, 16, and 25

Claim 8 requires "the step of adding the obtained context information appends the context information to a SIP TAG field." Claim 25 includes similar limitations. Claim 16 requires "the step of restoring the context of the layer

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[80] *Final Office Action*, p. 14.

[81] *Final Office Action*, p. 14 (the Examiner neglected to cite any particular passages of Lau or Vasavada). "[I]t is incumbent upon the examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied reference." *Ex parte Levy*, 17 USPQ.2d 1461, 1462 (Bd. Pat. App. & Int'f 1990).

[82] *Final Office Action*, p. 14.

[83] *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 399 (2007).

restores the context using context information stored in a SIP TAG." The Examiner admitted that Iyer and Ho fail to teach these limitations.[84] The Examiner cited Lau and Vasavada as teaching MPLS and IS-IS protocols.[85] The Examiner postulated that these protocols make appending context to a SIP TAG field, and restoring context using information stored in a SIP TAG field obvious.[86]

The Examiner has admitted that Iyer and Ho fail to teach storing/restoring context in/from a SIP TAG field, and has failed show any such teaching in Lau and Vasavada. Thus, the prior art presented fails to teach or suggest such use of a SIP TAG field. Therefore, Appellant respectfully submits that the Examiner has failed to state a prima facie case of obviousness. For these additional reasons, Appellant respectfully submits that the Examiner erred in rejecting claims 8, 16, and 25.

4. Claims 9, 17, and 26

Claim 9 requires "the step of adding the obtained context information appends the context information to a SIP extension header." Claim 26 includes similar limitations. Claim 17 requires "the step of restoring the context of the layer restores the context using context information stored in a SIP extension header." The Examiner admitted that Iyer and Ho fail to teach these limitations.[87] The Examiner cited Lau and Vasavada as teaching MPLS and IS-IS protocols.[88] The Examiner postulated that these protocols make appending context to a SIP

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[84] *Final Office Action*, p. 14.

[85] *Final Office Action*, p. 14 (the Examiner neglected to cite any particular passages of Lau or Vasavada). "[I]t is incumbent upon the examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied reference." *Ex parte Levy*, 17 USPQ.2d 1461, 1462 (Bd. Pat. App. & Int'f 1990).

[86] *Final Office Action*, p. 14.

[87] *Final Office Action*, p. 14.

[88] *Final Office Action*, p. 14 (the Examiner neglected to cite any particular passages of Lau or Vasavada). "[I]t is incumbent upon the examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied reference." *Ex parte Levy*, 17 USPQ.2d 1461, 1462 (Bd. Pat. App. & Int'f 1990).

extension header, and restoring context using information stored in a SIP extension header obvious.[89]

The Examiner has admitted that Iyer and Ho fail to teach storing/restoring context in/from a SIP extension header, and has failed show any such teaching in Lau and Vasavada. Thus, the prior art presented fails to teach or suggest such use of a SIP extension header. Therefore, Appellant respectfully submits that the Examiner has failed to state a prima facie case of obviousness. For these additional reasons, Appellant respectfully submits that the Examiner erred in rejecting claims 9, 17, and 26.

C. Rejections Under 35 U.S.C. § 103 Over Iyer

1. Claim 28

Independent claim 28 includes limitations similar to those of claim 11 explained above. Therefore, Appellant respectfully submits that the Examiner erred in rejecting claim 28 and claims 29-31 depending from claim 28 for much the same reasons as are given above regarding claim 11.

2. Claims 29-31

Claims 29-31 respectively include limitations similar to those of claims 12-14 explained above. Therefore, Appellant respectfully submits that the Examiner erred in rejecting claims 29-31 for much the same additional reasons as are given above with regard to claims 12-14.

D. Rejections Under 35 U.S.C. § 103 Over Iyer, and Lau or Vasavada

Claims 32-34 respectively include limitations similar to the limitations of claim 15-17 explained above. Therefore, Appellant respectfully submits that the Examiner erred n rejecting claims 32-34 for much the same additional reasons as are given above with regard to claims 15-17.

[89] *Final Office Action*, p. 14.

E. Conclusion

For the reasons stated above, Appellant respectfully submits that the Examiner erred in rejecting all pending claims. It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Hewlett-Packard Development Company's Deposit Account No. 08-2025.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

1. A method of storing context information in an outgoing message sent from a node including a computing device using a protocol stack having at least one layer, comprising:

providing, by the computing device, the outgoing message from an application to a layer of the protocol stack, the outgoing message is destined for an application on a destination node;

selectively indicating to the layer of the protocol stack that context information is to be obtained for that layer;

obtaining, by the computing device, context information in accordance with the indication; and

adding, by the computing device, the obtained context information to the outgoing message such that a response to the message contains the context information, the response is received from the destination node.

2. The method of claim 1, further comprising adding context information obtained from a different protocol stack layer to the outgoing message.

3. The method of claim 1, wherein the outgoing message is sent from the node is to a remote node across a network.

4. The method of claim 1, used with a message-based communications system.

5. The method of claim 1, wherein the step of obtaining context information obtains context information related to the outgoing message.

6. The method of claim 1, wherein the step of adding the obtained context information appends the context information to a separate field of the message.

7. The method of claim 1, for use with a session initiation protocol (SIP) network.

8. The method of claim 7, wherein the step of adding the obtained context information appends the context information to a SIP TAG field.

9. The method of claim 7, wherein the step of adding the obtained context information appends the context information to a SIP extension header.

10. The method of claim 1, further comprising adding, to the message, an indication associated with the obtained context data where it is determined that the context data is potentially inaccurate or incomplete.

11. A method of restoring the context information of a layer of a protocol stack of a node comprising:

receiving a message by a computing device;

determining, by the computing device, whether the context information of the layer is to be restored; and,

where it is so determined,

determining, by the computing device, the presence of context information relevant to the layer within the message; and

restoring, by the computing device, the context of the layer using context information from the message.

12. The method of claim 11, wherein the step of determining determines whether the context information of the layer is to be restored based in part on the context information of the layer and in part on the received message.

13. The method of claim 11, wherein the step of determining further comprises checking the existence at the layer of context information associated with the received message.

14. The method of claim 11, wherein the step of determining further comprises checking whether the received message is an initial message.

15. The method of claim 11, used with the session initiation protocol (SIP).

16. The method of claim 15, wherein the step of restoring the context of the layer restores the context using context information stored in a SIP TAG.

17. The method of claim 15, wherein the step of restoring the context of the layer restores the context using context information stored in a SIP extension header.

18. A system for storing context information in an outgoing message sent from a node using a protocol stack having at least one layer, comprising:

a circuit for providing the outgoing message from an application to a layer of the protocol stack; the outgoing message is destined for an application on a destination node;

means for indicating to the layer of the protocol stack that context information is to be obtained for that layer;

a module for obtaining context information in accordance with the indication;

a circuit for adding the obtained context information to the outgoing message such that a response to the message contains the context information, the response is received from the destination node.

19. A system according to claim 18, wherein the node is configured to add context information obtained from a plurality of protocol stack layers to the outgoing message.

20. A system according to claim 18, wherein the outgoing message is sent from the node to a remote node across a network.

21. A system according to claim 18, for use with a message-based communications system.

22. A system according to claim 18, wherein the context information obtained is related to the outgoing message.

23. A system according to claim 18, wherein the obtained context information is appended to a separate field of the message.

24. A system according to claim 18, for use with a session initiation protocol (SIP).

25. A system according to claim 24, wherein the obtained context information is appended to a SIP TAG field.

26. A system according to claim 24, wherein the obtained context information is appended to a SIP extension header.

27. A system according to claim 18, wherein an indication associated with the obtained context data is added to the message where it is determined that the context data is potentially inaccurate or incomplete.

28. A system of restoring the context information of a layer of a protocol stack of a node comprising:

receiving means for receiving a message;

logic for determining whether the context information of the layer is to be restored;

a circuit for determining the presence of context information relevant to the layer within the message; and

restoration means for restoring the context of the layer using context information from the message.

29. A system according to claim 28, wherein the logic for determining is configured for determining based in part on the context information of the layer and in part on the received message.

30. A system according to claim 28, wherein the logic for determining is configured for checking the existence at the layer of context information associated with the received message.

31. A system according to claim 30, wherein the logic for determining is configured for checking whether the received message is an initial message.

32. A system according to claim 28, for use with the session initiation protocol (SIP).

33. A system according to claim 32, wherein the restoration means is configured for restoring the context using context information stored in a SIP TAG.

34. A system according to claim 32, wherein the restoration means is configured for restoring the context using context information stored in a SIP TAG.

35. A method of sending a message from a node through a hierarchical structure of one or more discreet layers comprising:

indicating to a layer that context information is to be obtained for that layer;

obtaining, by a computing device, context information in accordance with the indication; and

adding, by the computing device, the obtained context information to the message, such that a response to the message contains context information needed to restore a pre-switchover context of the layer.

36. A method of restoring the context information of a layer of a hierarchical structure of discreet layers comprising:

receiving a message by a computing device;

determining, by the computing device, whether the context information of the layer is to be restored; and,

where it is so determined,

determining, by the computing device, the presence of context information relevant to the layer within the message; and

restoring, by the computing device, the context of the layer using context information from the message.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.